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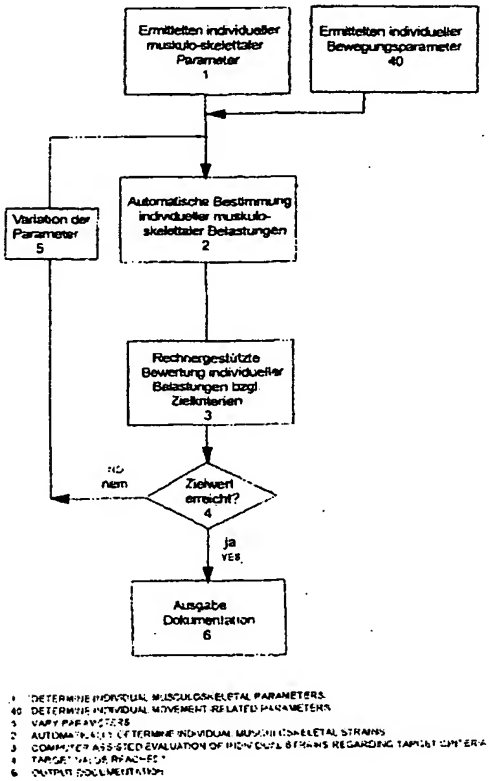
(54) Title: METHOD FOR SIMULATING MUSCULOSKELETAL STRAINS ON A PATIENT

(54) Bezeichnung: VERFAHREN ZUR SIMULATION MUSKULO-SKELETTALER BELASTUNGEN EINES PATIENTEN



(57) Abstract: The invention relates to a method and a device for simulating musculoskeletal strains on a patient, especially for preparing or monitoring surgical interventions and/or planning and/or monitoring rehabilitation. According to the invention, individual musculoskeletal parameters of the patient are determined first, particularly by automatically measuring anthropometric parameters and/or the position and/or alignment of joints, especially also gait-related data such that individual musculoskeletal strains are automatically determined from the determined musculoskeletal parameters of the patient. The individual musculoskeletal strains thus determined are evaluated in a computer-assisted manner regarding at least one target criterion, particularly the contact forces or the degree of motion of a joint or the fragment movements of a fracture. The aim of the invention is to create a method for evaluating musculoskeletal strains on a patient, by means of which above all surgical interventions or rehabilitative measures can be improved.

(57) Zusammenfassung: Die Erfindung betrifft ein Verfahren und eine Vorrichtung zur Simulation muskulo-skelettaler Belastungen eines Patienten, insbesondere zur Vorbereitung bzw. Überwachung operativer Eingriffe und/oder zur Planung bzw. Überwachung der Rehabilitation. Dazu werden zunächst individuelle muskulo-skelettale Parameter des Patienten, insbesondere durch automatische Messung anthropometrischer Parameter und/oder der Lage und/oder Orientierung von Gelenken ermittelt, insbesondere auch Gangdaten. Danach werden individuelle muskulo-skelettale Belastungen aus den ermittelten muskulo-skelettalen Parametern des Patienten automatisch bestimmt. Die so bestimmten individuellen muskulo-skelettalen Belastungen werden rechnergestützt hinsichtlich mindestens eines Zielkriteriums, insbesondere hinsichtlich der Kontaktkräfte oder des Bewegungsausmaßes eines Gelenkes oder hinsichtlich der Fragmentbewegungen einer Fraktur bewertet. Die Erfindung löst die Aufgabe, ein Verfahren zur Bewertung

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muskulo-skeletaller Belastungen eines Patienten anzugeben, mit dem insbesondere operative Eingriffe bzw. Rehabilitationsmaßnahmen verbessert werden können.